

Coding for Mucositis

ICD-9-CM Coordination and Maintenance Committee Meeting

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What is Mucositis?

- Mucositis is inflammation of the mucosal surfaces throughout the body.
- It typically involves redness and ulcerative sores in the soft tissues of the mucosa.
- Oral mucositis manifests as erythema, inflammation, ulceration, and hemorrhage in the mouth and throat.



Image from: Spielberger, Ricardo; Kepivance™: A Breakthrough for Oral Mucositis Associated with Myeloablative Hematopoietic Stem Cell Transplantation; City of Hope National Medical Center, Department of Hematology and Bone Marrow Transplantation

Causality

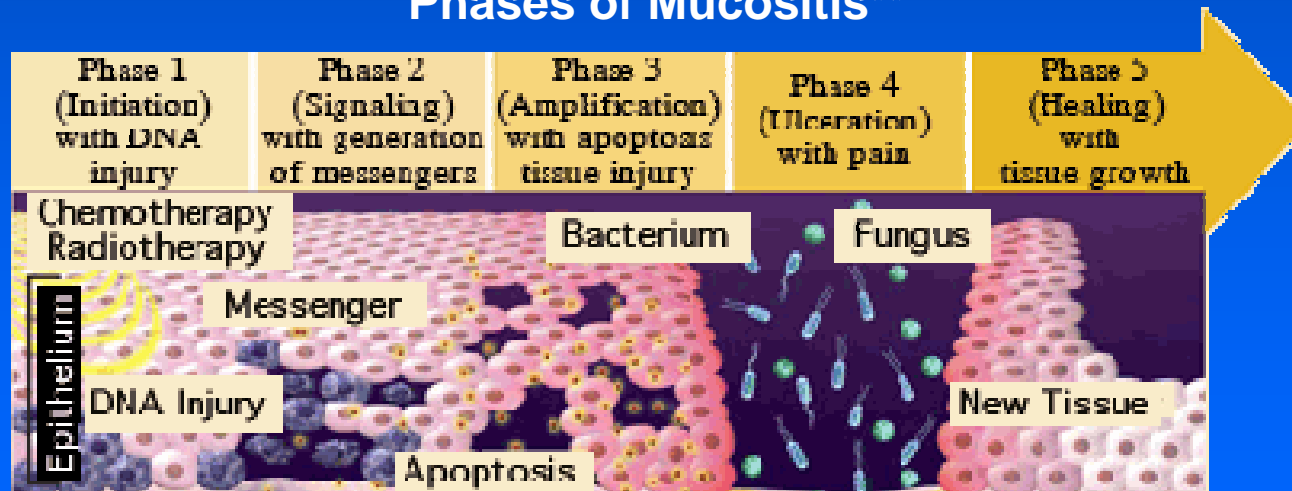
- Mucositis is a frequent complication of anticancer treatment, including chemotherapy and radiation therapy.
- Due to high-dose chemotherapy and/or radiation preconditioning, it is particularly common in patients preparing for bone marrow transplantation (BMT).

Source: Bellm LA, Epstein JB, Rose-Ped A, Martin P, Fuchs HJ. Patient reports of complications of bone marrow transplantation; Support Care Cancer. 2000 Jan;8(1):33-9

Mechanisms

- Characterized by damage to the epithelium of the oropharyngeal cavity and GI tract
- Rapidly dividing basal cells of the oral mucosa are among the body cells vulnerable to damage by chemotherapy and radiation therapies.*

Phases of Mucositis**



*National Institutes of Health Symptom Research: http://symptomresearch.nih.gov/Chapter_17/sec7/cghs7pg1.htm

**Adapted from Sonis. Nat Rev Cancer. 2004;4:277-284.

Sites of Mucositis

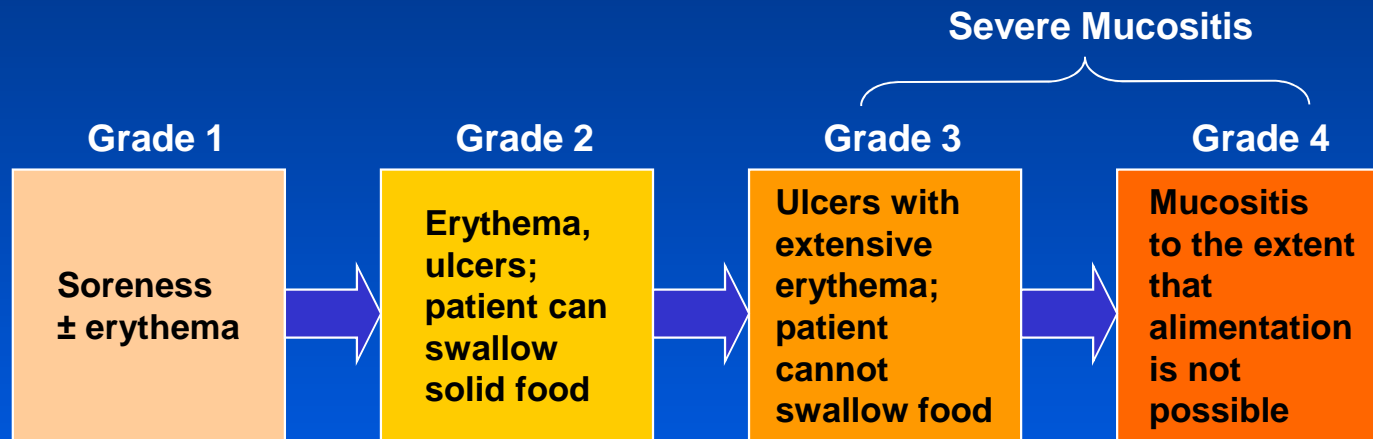
- While the oral mucosa is the most frequent site of mucosal toxicity, mucositis also is common along the entire alimentary tract:
 - Esophagus
 - duodenum
 - colon
 - Stomach
 - ileum/jejunum
 - rectum
- GI mucositis occurs via a mechanism similar to that in the oral mucosa, only the damage to the mucosal layer is more aggressive than in oral mucositis.
- Although less common, treatment of ovarian and nasopharyngeal cancer also can result in vaginal and nasal mucositis.

Severity Scales

- Many validated instruments have been developed to stage and measure mucositis severity.
 - National Cancer Institute's Common Toxicity Criteria (NCI CTC)
 - World Health Organization's (WHO's) Oral Toxicity Scale (OTS)

WHO's Oral Toxicity Scale

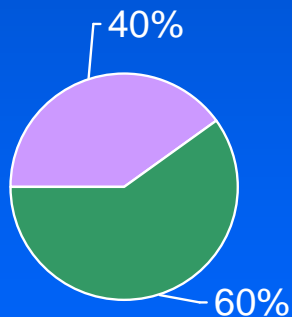
World Health Organization's Oral Toxicity Scale



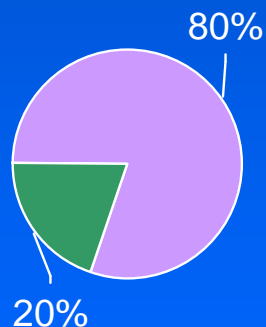
Epidemiology

- 40% of patients receiving standard-dose chemotherapy
- 80% of patients receiving radiation therapy for head and neck cancer
- 75% of all patients undergoing BMT

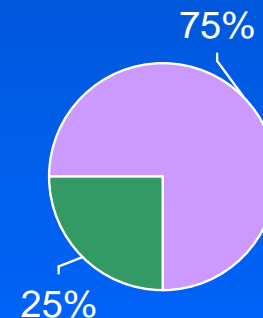
**Mucositis Frequency:
Standard-Dose Chemotherapy**



**Mucositis Frequency: Radiation
for Head and Neck Cancer**



**Mucositis Frequency: BMT with
High-Dose Chemotherapy and/or
Radiation Pre-Conditioning**



■ Mucositis Reported
■ Mucositis Not Reported

Clinical Consequences

- Painful condition that interferes significantly with patient functioning and tolerance for cancer therapy
- Functional implications may include:
 - Inability to tolerate food or fluid intake
 - Difficulty or inability to talk*

➔ ***In a recent study, BMT patients ranked mucositis as the most debilitating side effect of their treatment.*****

*Borbasi S, Cameron K, Quested B, Olver I, To B, Evans E. More than a sore mouth: patients' experience of oral mucositis. *Oncol Nurs Forum*. 2002;29:1051-1057, and Bellm et al. 2000.

**Bellm et al. 2000

Clinical Consequences (continued)

- Hospital admission or extended hospitalization for total parenteral nutrition, intravenous analgesia, and intravenous antibiotics
 - 62% of patients require hospitalization.*
 - 70% of patients with Grade 3-4 oral mucositis require feeding tubes.*
- Reduction or cessation (dose-limiting toxicity) of cancer treatment in 35% of patients*

*Sonis ST, Elting LS, Keefe D, Peterson DE, Schubert M. Perspectives on cancer therapy-induced mucosal injury. *Cancer*. 2004;100(9 Suppl):1995-2025

Differential Diagnosis and Treatment

- Mucositis is distinguishable from other forms of inflammatory disorders in terms of:
 - causality
 - clinical presentation/lab findings
 - severity
 - treatment
- ➔ *The presence and severity of radiation- or chemotherapy-induced mucositis is routinely documented in clinical progress notes.*

Inconsistency in Coding

ICD-9-CM Codes That Are Sometimes Used to Describe Mucositis

| Code(s) | Limitation(s) |
|--|---|
| <ul style="list-style-type: none"> ■ 288.0, Agranulocytosis; ■ V58.0, Encounter or admission for radiotherapy; and ■ V58.1, Encounter or admission for chemotherapy | Agranulocytosis and mucositis are distinct conditions without causal relationship. |
| <ul style="list-style-type: none"> ■ 528.0, Stomatitis <ul style="list-style-type: none"> – NOS – ulcerative – Excludes stomatitis: <ul style="list-style-type: none"> • acute necrotizing ulcerative • aphthous • gangrenous • herpetic • Vincent's | <ul style="list-style-type: none"> ■ Stomatitis coding is non-specific and does not permit differentiation based on etiology (viral, fungal, etc.). ■ May be used to represent mucosal damage that occurs due to local trauma (for example, biting, denture irritation, or localized infection) ■ Generally is used to describe conditions less severe and more localized than oral mucositis, as well as conditions that may be histologically distinct from oral mucositis |
| <ul style="list-style-type: none"> ■ 996.85, Complications of transplanted organ, bone marrow | <ul style="list-style-type: none"> ■ Some physicians are using 996.85 to describe mucositis. ■ ICD-9-CM code 996.85 is used for all BMT complications, for example, graft-versus-host disease. |
| <ul style="list-style-type: none"> ■ 530.10, Esophagitis unspecified, and 535.XX, Gastritis and duodenitis | <ul style="list-style-type: none"> ■ Mucositis of the stomach, duodenum, and other parts of the alimentary tract is clinically distinct from other types of inflammatory diseases of the GI system (for example, esophagitis resulting from gastroesophageal reflux disease). |

Stomatitis: Non-Descriptive and Outdated

- Non-descriptive term
- Not representative of current clinical nomenclature
- Used to describe conditions that are:
 - less severe than,
 - more localized than, and
 - histologically distinct from oral mucositis

Differential Diagnosis: Oral

| Disease/Injury | Causality | Clinical Presentation/Lab Findings | Severity | Treatment Options |
|------------------------------|---|---|---|---|
| Oral mucositis | Chemotherapy and radiation therapy | Diffuse redness, ulcerations, and pain, particularly in areas where teeth abut tissue | Varies; in BMT setting up to 98% have Grade 3/4 | Palliative rinses, narcotics, palifermin in the BMT setting |
| Aphthous stomatitis | Etiology not identified | Single painful ulcer | Localized, but painful; maximum grade 2 | Topical |
| Herpetic mucositis | HSV1 | Usually several spots; ulcerative | Usually grade 1-2 | Acyclovir, valacyclovir, foscarnet |
| Oral thrush | Candida | Varies from painless to mild soreness; whitish plaques | Usually grade 0-1 | Nystatin rinses; fluconazole and other azoles |
| Denture/oral trauma | Dentures | Common in elderly patients with loose-fitting dentures | Can limit calories | Repair, removal of dentures |
| Gangrenous stomatitis | Bacterial infections | Necrotic pseudomembranes | Rare, can be severe | Antibacterials that treat oral aerobes and anaerobes |
| Acute necrotizing stomatitis | Bacterial infections in immune deficient patients | Pain, fever, necrotic, bloody ulcers | Grade 3/4 | Control of infection |

Differential Diagnosis: Oral

Local, Denture-Related Lesion



Oral Thrush



Aphthous Ulcer



Oral Mucositis*



➔ ***Because these conditions can coexist in immunocompromised patients, differential diagnosis is critical.***

* Spielberger, Ricardo; Kevivance™: A Breakthrough for Oral Mucositis Associated with Myeloablative Hematopoietic Stem Cell Transplantation; City of Hope National Medical Center, Department of Hematology and Bone Marrow Transplantation

Differential Diagnosis: GI

| Disease/Injury | Causality | Clinical Presentation/ Lab Findings | Severity | Treatment Options |
|---------------------------|----------------------------|--|--------------------------|---|
| Mucositis of the GI tract | Chemotherapy and radiation | Typhilitis, diarrhea, ileus, bowel obstruction | Mild to life-threatening | Supportive care, treatment of infectious complications |
| Crohn's disease | Autoimmune | Diarrhea, pain, bowel obstruction | Mild to life-threatening | Steroids, antibody therapy with agents such as infliximab |
| Ulcerative colitis | Autoimmune | Diarrhea, hematochezia, ileus | Mild to life-threatening | Steroids, anti-inflammatory agents |
| C difficile colitis | C difficile toxin | Diarrhea | Mild to life-threatening | Antibacterials: metronidazole, vancomycin |
| Viral colitis, e.g., CMV | Specific viral infection | Diarrhea | Mild to life-threatening | Antivirals: ganciclovir, foscarnet |

Data Issues with Current Coding

- As indexed, ICD-9-CM currently classifies mucositis with localized inflammation.

Mucositis – see *also* Inflammation by site
necroticans agranulocytica 288.0

- Classifying mucositis with all other types of inflammation is non-specific.
- Codes for generalized inflammation are too broad and non-descriptive to allow distinct identification of mucositis for retrospective disease identification and data analysis.

Precedent for Specific Code

The ICD-9-CM code for stomatitis (528.0) currently excludes more specific diseases of the oral mucosa.

